

In the Claims:

Claims 1 to 16 (canceled).

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1 17. (new) A gas sensor for sensing a gas or gas composition at  
2 high temperatures, said gas sensor comprising a substrate  
3 (1) having a sensor carrier section with a tip (10) and a  
4 conductor carrier section (9) connected to said sensor  
5 carrier section opposite said tip (10), a gas sensor  
6 function layer (4) supported by said sensor carrier section  
7 of said substrate (12) next to said tip (10), an electrical  
8 heater (6) supported by said sensor carrier section in a  
9 position for heating said gas sensor function layer (4),  
10 electrical conductors (2) supported on said conductor  
11 carrier section (9) of said substrate (1) and electrically  
12 connected to said electrical heater (6), said electrical  
13 heater (6) comprising heater sections having different  
14 heating resistance values which depend on a spacing between  
15 any particular heater section and said tip (10) of said  
16 sensor carrier section for generating a constant operating  
17 temperature throughout said gas sensor function layer (4)  
18 by compensating varying heat dissipations by said substrate  
19 in said sensor carrier section.

1 18. (new) The gas sensor of claim 17, wherein said different  
2 heating resistance values of said heater sections diminish  
3 toward said tip (10) of said sensor carrier section of said  
4 substrate (1).

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1 19. (new) The gas sensor of claim 17, wherein said electrical  
2 heater (6) comprises a meandering heater path having  
3 meandering amplitudes forming said heater sections, and  
4 wherein said meandering amplitudes vary in their size  
5 depending on said spacing between any particular heater  
6 section formed by a respective amplitude and staid tip  
7 (10).

14 1 20. The gas sensor of claim 19, wherein said meandering  
2 amplitudes diminish toward said tip (10).

1 21. (new) The gas sensor of claim 17, wherein said electrical  
2 heater (6) comprises a heater path having a path width (b)  
3 along said heater sections which path width (b) varies  
4 depending on said spacing between any particular heater  
5 section and said tip (10).

1 22. (new) The gas sensor of claim 21, wherein said path width  
2 (b) increases toward said tip (10).

1 23. (new) The gas sensor of claim 17, wherein said electrical  
2 heater (6) comprises a heater path having a path length  
3 along said heater sections and a path width (b), and  
4 wherein said path length and said path width (b) vary  
5 depending on said spacing between any particular heater  
6 section and said tip (10).

1 24. (new) The gas sensor of claim 23, wherein said path length  
2 diminishes from section to section of said heater sections  
3 toward said tip (10), and wherein said path width (b)  
4 increases from section to section of said heater sections  
5 toward said tip (10).

1 25. (new) The gas sensor of claim 17, further comprising at  
2 least one temperature sensing conductor path (12)  
3 electrically connected to said electrical heater (6) at a  
4 contact point between said electrical heater (6) and said  
5 temperature sensing conductor path (12) for measuring said  
6 constant operating temperature.

1 26. (new) The gas sensor of claim 25, wherein said gas sensor  
2 function layer (4) has a length (L) toward said tip (10)  
3 and wherein said contact point is located along said length  
4 (L) of said gas sensor function layer (4) below said gas  
5 sensor function layer (4).

1 27. (new) The gas sensor of claim 26, comprising at least two  
2 contact points between said temperature sensing conductor  
3 path (12) and said electrical heater (6) for selecting a  
4 different resistance value from at least two such different  
5 resistance values of said electrical heater (6).

1 28. (new) The gas sensor of claim 17, wherein said sensor  
2 carrier section has a sensor carrier length (G + L) between  
3 said tip (10) and said conductor carrier section (9), said

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4 sensor carrier section length (G + L) being longer than a  
5 length (L) of said gas sensor function layer (4), and  
6 wherein said electrical heater (6) is arranged along said  
7 sensor carrier length (G + L).

1 29. (new) The gas sensor of claim 17, wherein said electrical  
2 heater (6) comprises at least two meandering heater  
3 sections electrically connected in series with each other  
4 and to respective conductors secured to said conductor  
5 carrier section (9), each of said meandering heater  
6 sections having diminishing amplitudes forming respective  
7 heater section configurations. (z.B. Fig. 6)

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1 30. (new) The gas sensor of claim 29, wherein said diminishing  
2 amplitudes are largest next to said conductor carrier  
3 section (9) and smallest next to said tip (10) of said  
4 sensor carrier section. (z.B. Fig. 6)

1 31. (new) The gas sensor of claim 17, wherein said gas sensor  
2 function layer (4) is secured to one side or surface of  
3 said sensor carrier section of said substrate (1), and  
4 wherein said electrical heater (6) is attached to an  
5 opposite side or surface of said sensor carrier section of  
6 said substrate (1) in said position for heating said gas  
7 sensor function layer (4).